

and 30 would also be allowable if the two claims were amended to overcome the objections noted in the present Office Action.

In lieu of these remarks, applicants have amended Claims 26 and 30 in the manner indicated above. Specifically, applicants have amended Claim 26 by rewriting that claim in independent form so as to include the limitations of base Claim 24. Thus, amended Claim 26 now positively recites that both the upper and lower plate electrodes of the capacitor are composed of SiGe polysilicon.

Insofar as Claim 30 is concerned, applicants have amended that claim by deleting the term "SiGe" from line 5 of the claim. Amended Claim 30 now recites a structure where the first electrode of a bipolar device and the second plate electrode of a capacitor are composed of SiGe polysilicon. Applicants thus submit that amended Claim 30 is allowable over the art of record based upon the same reasons that original Claim 29 is deemed allowable by the Examiner in the present Office Action.

In view of the amendments and remarks made above, applicants submit that the objections to Claims 26 and 30 have been overcome; therefore those claims should be also included with the list of allowable subject matter.

In addition to the above amendments to Claims 26 and 30, applicants have also amended Claim 24 to positively recite a poly-poly capacitor which includes upper (42) and lower plate (26) electrodes, wherein at least the upper plate electrode (42) is composed of SiGe polysilicon, said plate electrodes being separated by an insulator structure (32) and said upper plate electrode (42) is located directly above said insulator structure (32) and said lower plate electrode (26) is located directly below said insulator structure. Support for this amendment to Claim 24 is found in FIG 3.

Since the above amendments to the claims do not introduce new matter into the application, entry thereof is respectfully requested. Applicants respectfully submit that the amendments to the claims should be entered since they either overcome objections raised by the Examiner, as is the case with Claims 26 and 30, or they better define the relationship of the various elements that are present in the claimed poly-poly capacitor, as is the case with Claim 24. Applicants further submit that the amendment to Claim 24 does not raise any new issues which would prevent the Examiner from entering the amendment.

As required by 37 C.F.R. §1.121, applicants have attached a marked-up version of the changes made to the claims by the current amendment. The marked-up attachment is captioned "**VERSION WITH MARKINGS SHOWING CHANGES MADE**".

Claims 24 and 25 stand rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 5,973,954 to Wu, et al. ("Wu, et al."). Claim 27 stands rejected under 35 U.S.C. §102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103 as allegedly unpatentable over Wu, et al. Claim 28 stands rejected under 35 U.S.C. §103 as allegedly unpatentable over the combination of Wu, et al. and U.S. Patent No. 6,150,701 to Lee ("Lee").

In regard to the anticipation rejections, it is axiomatic that anticipation under §102 requires that the prior art reference disclose every element of the claim to which it is applied. In re King, 801 F.2d 1324, 1326, 231 USPQ 36, 138 (Fed. Cir. 1986). Thus, there must be no differences between the subject matter of the claims and the disclosure of the applied prior art reference. Stated in another way, the reference must contain within its four corners adequate direction to practice the invention as claimed. The corollary of this rule is equally applicable.

The absence from the applied reference of any claimed element negates anticipation. Kolster Speedsteel AB v. Crucible Inc., 793, F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986).

Applicants respectfully submit that Claims 24, 25 and 27 are not anticipated by the disclosure of Wu, et al. since the applied reference does not disclose applicants' claimed poly-poly capacitor which comprises upper and lower plate electrodes that are separated by an insulator structure, wherein at least the upper plate electrode is composed of SiGe polysilicon *and said upper plate electrode is located directly above said insulator structure and said lower plate electrode is located directly below said insulator structure.* In contrast, the capacitor structure disclosed in Wu, et al. comprises lower storage node electrode 91, which includes upper poly SiGe region 102 and lower poly Si region 100, capacitor dielectric layer 82; and upper polysilicon cell plate 84. Hence, the capacitor structure of the applied prior art has a material configuration that is opposite that of the claimed invention wherein it is required that at least the upper plate electrode is comprised of SiGe polysilicon. In the prior art structure, the lower plate electrode, i.e., storage node electrode 91, has an upper region that is composed of poly SiGe. The upper poly SiGe region of the lower electrode is located beneath capacitor dielectric 82, and upper polySi plate electrode, i.e., cell plate 82, is formed atop the capacitor dielectric.

Applicants submit that in the Final Rejection, the Examiner has mistakenly recited that the prior art capacitor shown in FIG 7 includes lower plate electrode 84, insulator structure 82 formed on lower plate electrode 84 and upper SiGe polysilicon plate electrode 102 formed on the insulator structure. In contrast, the capacitor structure disclosed in FIG 7 of Wu, et al. includes lower plate electrode 91 which includes upper poly SiGe region 102 and lower polySi region 100 having a heterojunction interface 104 formed therebetween. Regions 102

and 100 form diode as well as the lower plate electrode, i.e., storage node electrode 91, of the capacitor. The lower plate electrode, particularly the poly SiGe region, has capacitor dielectric formed thereon and an upper polySi electrode, i.e., cell plate 84, is formed on the capacitor dielectric.

The foregoing remarks clearly establish that the disclosure of Wu, et al. does not teach every aspect of the rejected claims, as required by King and Kolster Speedsteel; therefore the claims of the present application are not anticipated by the disclosure of Wu, et al. Applicants thus submit that the since the instant §102(e) rejections have been obviated, the rejections to Claims 24, 25 and 27 citing Wu, et al. can and should be withdrawn.

In regard to the §103 rejections citing Wu, et al. alone, or the combination of Wu, et al. and Lee, applicants submit that the applied references do not render the claims obvious since Wu, et al. alone, or Wu, et al. in combination with Lee, do not teach or suggest applicants' claimed poly-poly capacitor structure. Specifically, the principal reference spurring each §103 rejections, i.e., Wu, et al., is deficient for the same reasons as mentioned hereinabove; therefore applicants incorporate those remarks herein by reference. To reiterate: Wu, et al. do not teach or suggest a poly-poly capacitor structure which comprises upper and lower plate electrodes that are separated by an insulator structure, wherein at least the upper plate electrode is composed of SiGe polysilicon and said upper plate electrode is located directly above said insulator structure and said lower plate electrode is located directly below said insulator structure. In contrast, the capacitor structure disclosed in Wu, et al. comprises lower storage node electrode 81 which includes an upper polycrystalline SiGe region 102, capacitor dielectric layer 82, and upper polysilicon cell plate 84. As stated above, the capacitor structure of the applied prior art has a material configuration that is opposite that of

the claimed invention wherein it is required that at least the upper plate electrode is comprised of SiGe polysilicon.

The applied secondary reference, i.e., Lee, does not alleviate the above mentioned defects in Wu, et al. since Lee also does not teach or suggest applicants' claimed poly-poly capacitor structure which comprises upper and lower plate electrodes that are separated by an insulator structure, wherein at least the upper plate electrode is composed of SiGe polysilicon.

Lee discloses a semiconductor device which includes a substrate having a plurality of device isolation regions, first and second n-wells horizontally spaced apart from either of the plurality of device isolation regions, a p-channel transistor formed in a second n-well, an input protection transistor horizontally spaced apart from the first n-well and the device isolation regions, on a symmetrical portion by the first n-well to the second n-well, and a guard ring formed between the first n-well and the input transistor. The disclosure of Lee does not, however, teach or suggest the presence of any capacitor structure, let alone the claimed poly-poly capacitor structure wherein the upper plate electrode is comprised of SiGe polysilicon.

The §103 rejections also fail because there is no motivation in the applied references which suggests modifying the structures described therein to include applicants' claimed poly-poly capacitor in which the upper plate electrode which is located atop an insulator structure is comprised of SiGe polysilicon. The rejections are thus improper since the prior art does not suggest this drastic modification. The law requires that a prior art reference provide some teaching, suggestion, or motivation to make the modification obvious. In re Fritch, 972 F.2d, 1260, 1266, 23 USPQ 1780, 1783-84 (Fed. Cir. 1992).

Here, there is no motivation provided in the disclosures of the applied prior art references, or otherwise of record, which would lead one skilled in the art to make the

modification mentioned hereinabove. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d, 1260, 1266, 23 USPQ 1780, 1783-84 (Fed. Cir. 1992).

There is no suggestion in the prior art of applicants' claimed poly-poly capacitor structure therefore all the claims of the present application are not obvious from Wu, et al., alone, as well as the combination of Wu, et al. and Lee.

Based on the above amendments and remarks, the §103 rejections citing Wu, et al., or Wu, et al. and Lee have been obviated; therefore reconsideration and withdrawal of the instant §103 rejections are respectfully requested.

Wherefore reconsideration and allowance of the claims of the present application are respectfully requested.

Respectfully submitted,

  
Leslie S. Szivos  
Registration No. 39,394

SCULLY, SCOTT, MURPHY & PRESSER  
400 Garden City Plaza  
Garden City, New York 11530  
(516) 742-4343

LSS:tt

FAX COPY RECEIVED  
JUL 26 2002  
TECHNOLOGY CENTER 2800

Serial No.: 09/516,615

Docket No.: BUR919990190US1  
(13020)

**ATTACHMENT: VERSION WITH MARKINGS SHOWING CHANGES MADE  
IN THE CLAIMS:**

Please amend Claims 24, 26 and 30 to read as follows:

24. (Twice Amended) A poly-poly capacitor comprising upper and lower plate electrodes, wherein at least the upper plate electrode is composed of SiGe polysilicon, said plate electrodes being separated by an insulator structure and said upper plate electrode is located directly above said insulator structure and said lower plate electrode is located directly below said insulator structure.

26. (Twice Amended) A [The] poly-poly capacitor [of Claim 24] comprising upper and lower plate electrodes, wherein the upper plate electrode and the lower plate electrode are both composed of SiGe polysilicon, said plate electrodes being separated by an insulator structure [wherein the lower plate electrode is composed of SiGe polysilicon].

31. (Amended) A semiconductor structure, comprising  
a first layer of polysilicon patterned to form a first electrode of a MOS device and a first plate electrode of a capacitor, and  
a second layer of [SiGe] polysilicon patterned to form a first electrode of a bipolar device and a second plate electrode of said capacitor, said second layer being comprised of SiGe polysilicon.